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Feature Article - Updating the Experimental Composite Leading Indicator of the Australian Business Cycle: December Quarter 1999

BACKGROUND

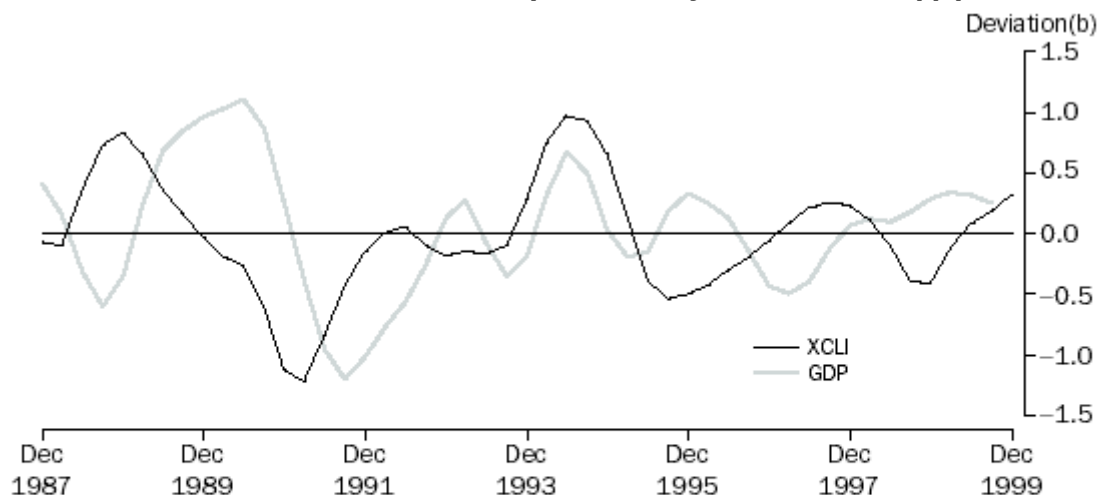
The ABS Experimental Composite Leading Indicator (XCLI) is a single time series designed to provide early signals of turning points in the Australian business cycle. It does not predict the level of GDP or signal recessions or recoveries. Past performance of the XCLI shows it led turning points in the business cycle by between one and six quarters, with the average being around two quarters.

The XCLI has been developed to supplement rather than to compete with existing forms of economic analysis and forecasting. It is published each quarter in **Australian Economic Indicators** (in the March, June, September and December issues).

MOST RECENT MOVEMENTS

1. EXPERIMENTAL COMPOSITE LEADING INDICATOR (XCLI) AND ITS TARGET, THE BUSINESS CYCLE IN GDP-

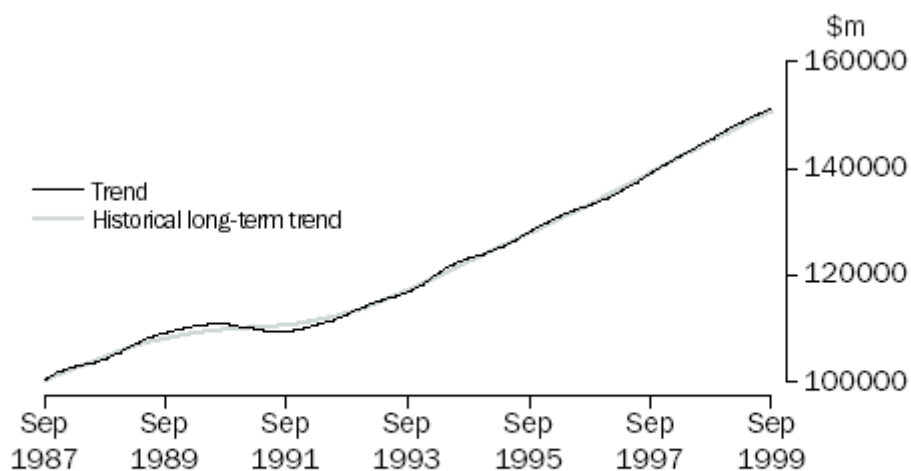
Chain volume measure (reference year 1997-1998)(a)



(a) The historical long-term trend growth rate of GDP is 0.89% in the September quarter 1999 and the trend growth rate is 0.82%.

(b) Deviation is the unit of measure for the GDP series. The XCLI series has no official unit of measure, ie it is dimensionless. (see Endnote).

2. GDP, Chain volume measure (reference year 1997-98)



Source: ABS (Cat. no. 5206.0), Quarterly

TABLE 1 XCLI AND GDP CHAIN VOLUME MEASURE (REFERENCE YEAR 1997-98)

	Dec 1998	Mar 1999	Jun 1999	Sep 1999	Dec 1999	Mar 2000
LEVEL						
XCLI	-0.39	-0.41	-0.13	0.08	0.18	0.32
GDP Trend (\$m)	145,383	147,011	148,521	149,863	151,085	na
GDP Long-term trend (\$m)	145,123	146,584	148,022	149,382	150,709	na
GDP Business cycle	0.18	0.29	0.34	0.32	0.25	na
MOVEMENT FROM PREVIOUS QUARTER						
XCLI (change)	-0.29	-0.02	0.28	0.21	0.11	0.13
GDP Trend (% change)	1.11	1.12	1.03	0.90	0.82	na
GDP Long-term trend (% change)	1.03	1.01	0.98	0.92	0.89	na
GDP Business cycle (change)	0.08	0.11	0.05	-0.01	-0.07	na

TABLE 2 CONTRIBUTIONS TO QUARTERLY CHANGES IN THE XCLI

	Sep 1998	Dec 1999	Mar 1999	Jun 1999	Sep 1999	Dec 1999
Trade factor	-0.13	-0.08	0.06	0.07	0.05	0.04
United States GDP	0.03	0.01	-0.02	-0.01	-0.02	0.04
Housing Finance Commitments	-0.03	0.02	0.03	0.06	0.06	0.05
Job Vacancies	-0.07	-0.10	-0.04	0.04	0.05	0.06
All Industrials index	-0.09	0.01	0.11	-0.02	-0.13	-0.06
Real interest rate (inverse lagged four quarters)	0.03	0.01	-0.01	0.00	0.01	-0.03
Production expectations (lagged one quarter)	0.04	0.08	0.05	-0.02	0.01	0.04
Business expectations (lagged one quarter)	-0.07	0.02	0.09	0.09	0.03	-0.00
Total XCLI, change from previous quarter	-0.29	-0.02	0.28	0.21	0.11	0.13

The XCLI rose 0.13 in the December quarter 1999, the fourth consecutive signal of growth in the

Australian (GDP) business cycle (see Graph 1). The XCLI historically leads turning points in the GDP business cycle by between one and six quarters. The most recent example of this relationship is a peak in the XCLI in the September quarter 1997 and the (provisional) peak in the GDP business cycle in the March quarter 1999, where the XCLI led by six quarters. The XCLI has a provisional trough in the December quarter 1998 that is not yet evident in the GDP business cycle.

In the December quarter 1999, the largest positive contribution to the XCLI came from the job vacancies component (0.06) while the largest negative contribution came from the All Industrials component (-0.06) (see table 2).

In the September quarter 1999, GDP trend grew at a slower rate (0.82%) than its historical long-term trend (0.89%) and the GDP business cycle decelerated for the second consecutive quarter (refer to Table 1).

REFERENCE SERIES

The reference or target series for the XCLI is the business cycle in Australia. The business cycle of a series is defined as the deviation between the trend and the historical long-term trend in the series. Graph 1 shows the business cycles in GDP and the XCLI. Graph 2 shows the level of trend GDP compared with its historical long-term trend.

The recent expansionary stage of the GDP business cycle began in the June quarter 1997 and provisionally ended in the March quarter 1999. During this period, the trend GDP was rising faster than its historical long-term trend in seven of the eight quarters: the exception was the June quarter 1998. In the June and September quarters 1999 the trend GDP grew at a slower rate than its historical long-term trend.

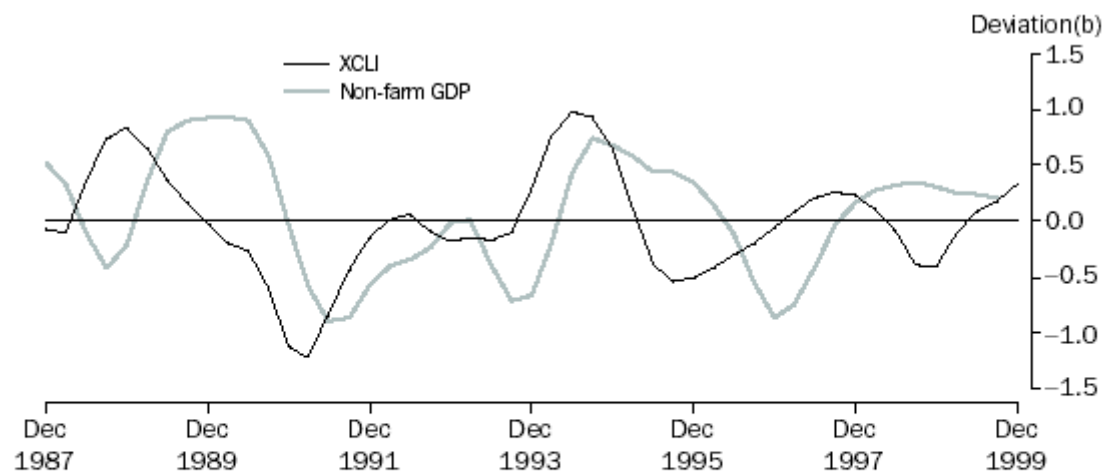
NON-FARM GDP

In the December quarter 1995, there was a peak in the business cycle which the XCLI failed to predict. This peak was largely attributable to the effects of a good farm season. The XCLI does not contain an indicator which leads first order farm product effects. To compensate for this Graph 3 presents an alternative target series, namely, the business cycle of non-farm GDP, chain volume measure.

In the September quarter 1998 the non-farm GDP business cycle recorded a provisional peak. The XCLI, which peaked in the September quarter 1997, led this turning point by four quarters. The decline in the growth of the non-farm GDP business cycle in the September quarter 1999 is consistent with the decline in GDP trend. This suggests that farm product made a contribution to the growth in the GDP business cycle during the period between the December quarter 1998 and the March quarter 1999.

3. EXPERIMENTAL COMPOSITE LEADING INDICATOR (XCLI) AND, THE BUSINESS CYCLE IN NON-FARM GDP

Chain volume measure (reference year 1997-98)(a)



- (a) The historical long-term trend growth rate of non-farm GDP is 0.87% in the September quarter 1999 and the trend growth rate is 0.84%.
- (b) Deviation is the unit of measure for the GDP series. The XCLI series has no official unit of measure, ie it is dimensionless. (See Endnote).

ANALYSIS OF COMPONENT INDICATORS

Deviation from historical long-term Trend

The XCLI summarises the business cycles present in a selection of economic indicators, which had typically shown turning points ahead of the business cycle in GDP from the early 1970s to the early 1990s. Because the evolution of each expansion and contraction in activity presents a unique combination of features, none of the individual component indicators has had an unvarying or perfectly stable leading relationship with GDP. However, when combined to form the XCLI their performance as a group is more stable. The XCLI has no official unit of measure, i.e. it is dimensionless (see the Endnote).

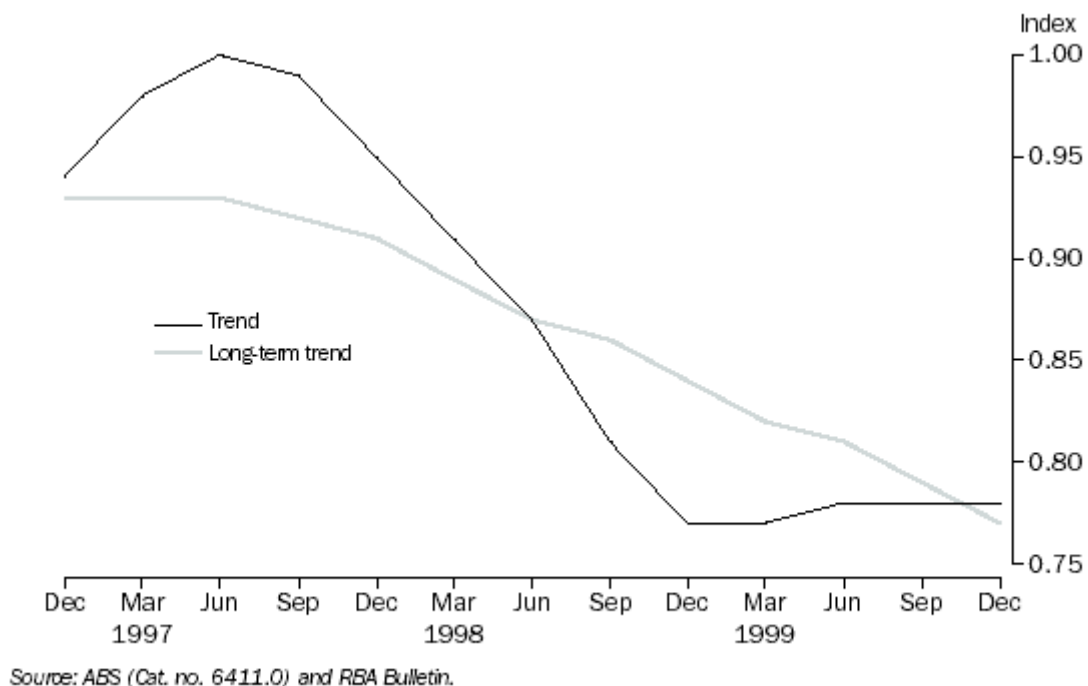
In the December quarter 1999, five of the eight components made positive contributions to the quarterly change in the XCLI and three components made negative contributions (one of which was relatively static) (Table 2). Graphs 4 to 11 show each component's trend and historical long-term trend.

Positive contributions: The components making positive contributions to the quarterly change in the December quarter 1999 XCLI were job vacancies (0.06 points, Graph 7), housing finance commitments (0.05 points, Graph 6), the trade factor (0.04 points, Graph 4), United States GDP (0.04 points, Graph 5) and production expectations (0.04 points, Graph 10).

Negative contributions: The components making negative contributions to the quarterly change in the December quarter 1999 XCLI were the All Industrials index (-0.06 points, Graph 8) and the real interest rate factor (-0.03 points, Graph 9) while business expectations was relatively static (-0.00 points, Graph 11).

Trade Factor

4. TRADE FACTOR

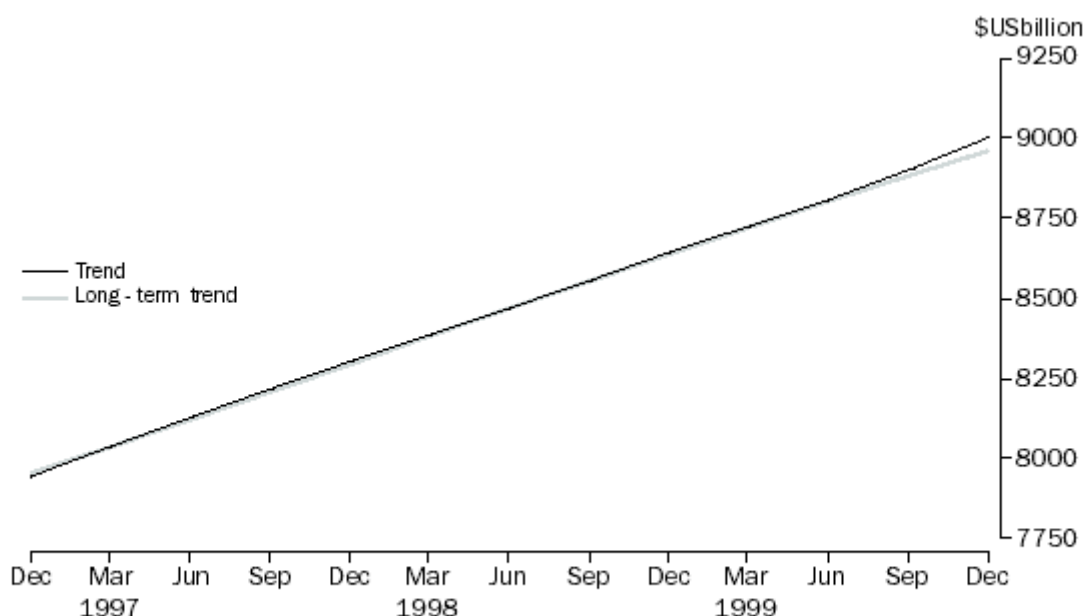


The trade factor is defined as the ratio between commodity prices in terms of Special Drawing Rights and the price index for imported materials used by Australian producers. This ratio gives an early estimate of the terms of trade. In the December quarter 1999 the trade factor trend declined marginally. However, in this quarter the trend rose above the historical long-term trend as the latter declined more rapidly. The trade factor component consequently made a positive contribution to the XCLI in the December quarter 1999, its fourth consecutive positive contribution.

The marginal decline in the trade factor trend is attributable to a relatively small decline in commodity prices (measured in terms of Special Drawing Rights) against a stable price index for imported materials.

United States GDP

5. UNITED STATES GDP, Chain volume measure (Reference year 1996)

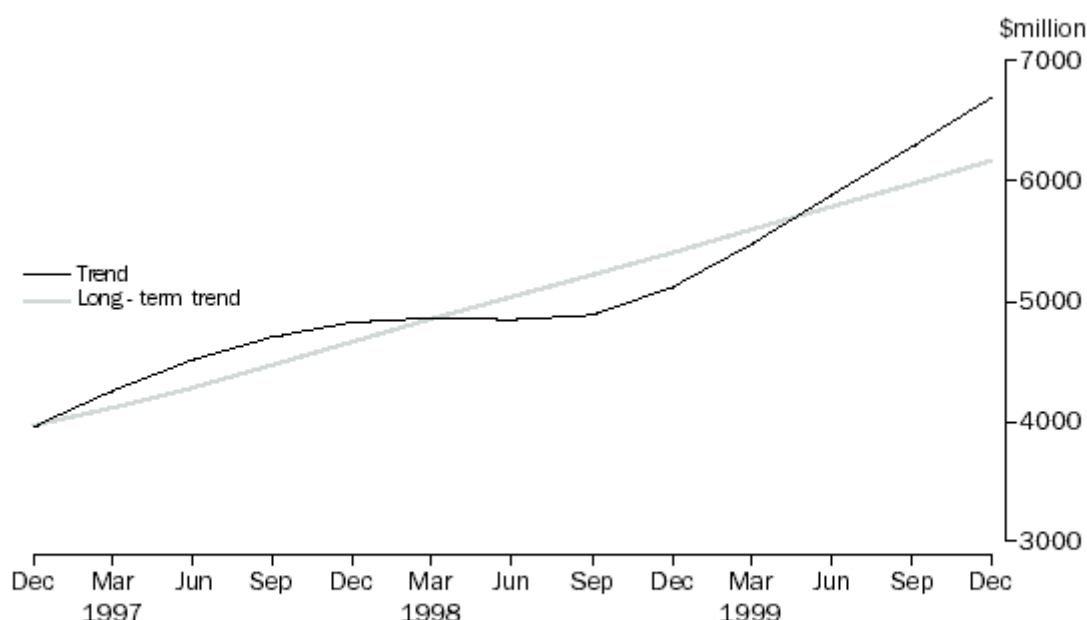


Source: US Bureau of Economic Analysis.

The trend of United States GDP has been above its historical long-term trend since the September quarter 1997 with the exception of the September quarter 1998. In the December quarter 1999, since the US GDP trend growth rate was higher than its historical long-term trend growth rate, the US GDP component made a positive contribution to the XCLI.

Secured housing finance commitments

6. SECURED HOUSING FINANCE COMMITMENTS



Source: ABS (Cat. no. 5671.0).

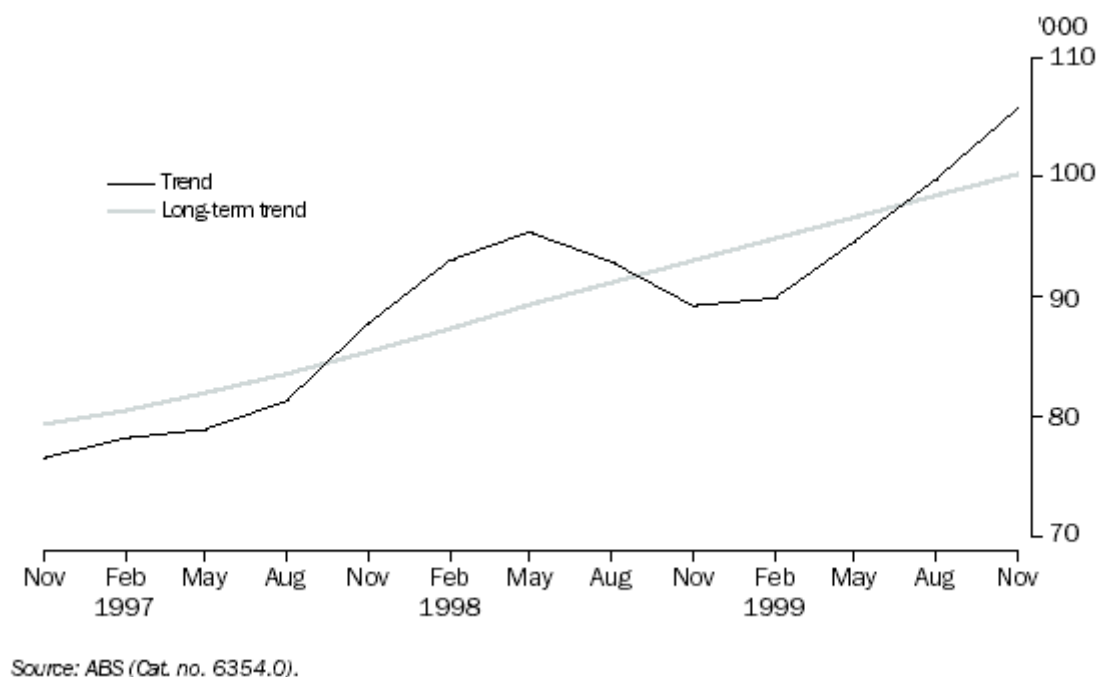
The trend of the secured housing finance commitments component has been growing more rapidly than its historical long-term trend since the December quarter 1998. As a result of this, the housing finance component made a positive contribution to the XCLI in the December quarter 1999.

Job Vacancies

Note that the job vacancies series are referenced to the middle month of a quarter.

The Job Vacancies estimates in this issue have been revised due to survey form, operational and estimation methodology changes. Even though the levels throughout the series have changed, movements were relatively unchanged resulting in minimal impact on the XCLI. For further information on the changes to the Job Vacancies Survey, please refer to the November 1999 issue of **Job Vacancies, Australia** (Cat. no. 6354.0)

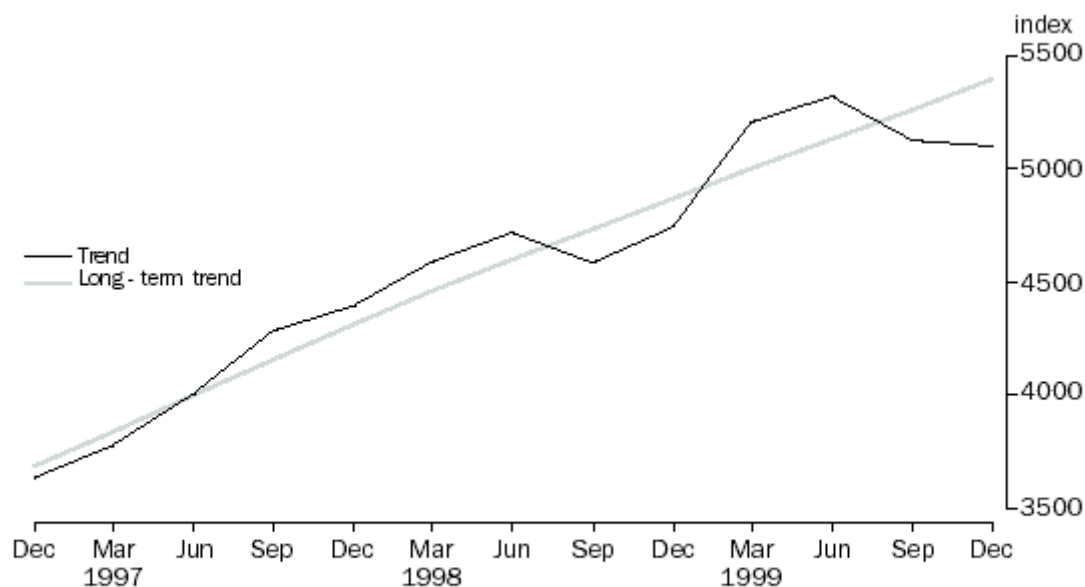
7. JOB VACANCIES



The trend of the number of job vacancies rose in November 1999 for the fourth consecutive quarter. The trend series has recorded strong rises in the last three quarters in contrast to quite gradual rises recorded by its historical long-term trend since November 1995. The strong rises in the trend reflect the continuing buoyant conditions in the labour market. Job vacancies made a positive contribution to the XCLI in the December quarter 1999 — the largest contribution of all the components of the XCLI. This contribution (0.06) was the largest of the last three positive contributions made by the job vacancies component to the XCLI.

All Industrials index

8. ALL INDUSTRIALS INDEX

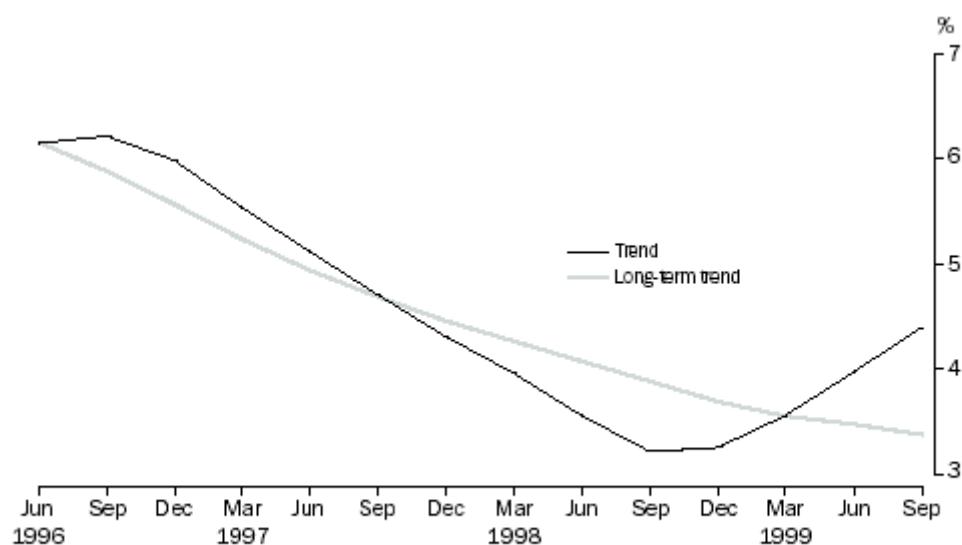


Source: Australian Stock Exchange.

In the December quarter 1999, the growth rate of the All Industrials index trend series fell while the historical long-term trend growth rate continued to rise. Thus the All Industrials index component made a negative contribution to the XCLI in the December quarter 1999 (-0.06), the largest negative contribution of all components of the XCLI.

Real Interest Rate

9. REAL INTEREST RATE



Source: ABS (Cat. no. 5206.0) and Treasury.

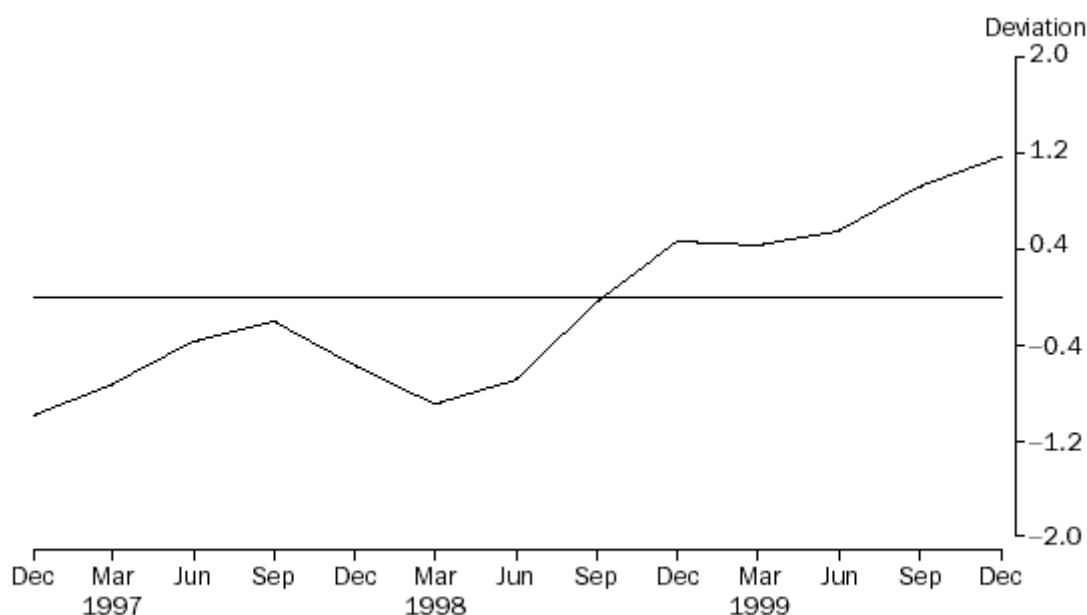
The XCLI uses the inverse of the difference between the trend and the historical long-term trend of the real interest rate, lagged four quarters. Therefore, it is the December quarter 1998 movement of the real interest rate that contributes to the December quarter 1999 movement in the XCLI. In the December quarter 1999, the real interest rate component (once inverted) contributed negatively to the XCLI (-0.03).

Between the March quarter 1997 and the September quarter 1998, the trend of the real interest rate component declined more rapidly than its historical long-term trend. This pattern changed in the December quarter 1998, when the trend began to rise and the historical long-term trend

continued to decline. The implication of this change is that real interest rates are likely to make negative contributions to the XCLI in the next few quarters.

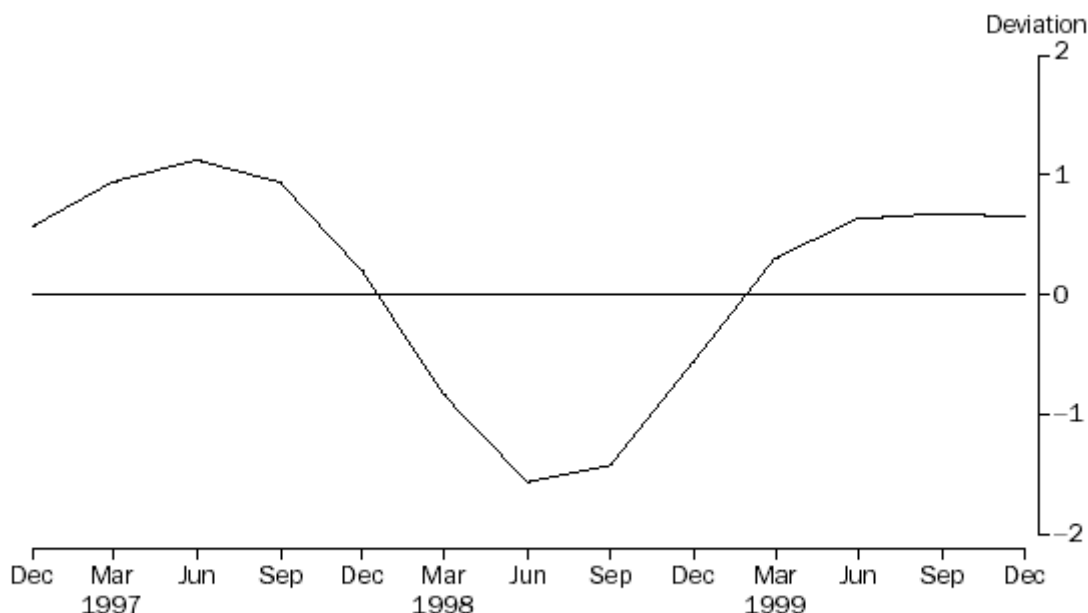
Production and business expectations

10. PRODUCTION EXPECTATIONS, Trend



Source: AOC and Westpac and Survey of Industrial Trends.

11. BUSINESS EXPECTATIONS, Trend



Source: AOC and Westpac and Survey of Industrial Trends.

Note: These components are lagged one quarter in the compilation of the XCLI. Like other XCLI components, the production expectations and business expectations series have been smoothed and standardised to display cyclical behaviour. However, these series are not considered to exhibit long-term trend growth.

In the December quarter 1999, trend production expectations rose for the third consecutive quarter. As a consequence of the rise in the September quarter 1999, this component has contributed positively to the XCLI for the December quarter 1999.

Trend business expectations declined marginally in the December quarter 1999, following rises since the June quarter 1998. This component made a minor negative contribution to the XCLI for the December quarter 1999.

Note: The source of these expectations series is the Australian Chamber of Commerce and Industry, and Westpac Banking Corporation, Survey of Industrial Trends. The ABS also compiles business expectations data. However, these cannot yet be included as a component of the XCLI due to the insufficient length of the time series.

LONGER TIME SERIES AND FURTHER DETAILS

Details of the compilation of the XCLI index can be found in **An Experimental Composite Leading Indicator of Australian Economic Activity**, (1347.0), June 1993, and in the feature articles published in **Australian Economic Indicators** (1350.0) in August, October 1992 and May 1993.

Longer time series of the data presented in this XCLI note are now available on PC AUSSTATS. For further information about these statistics, contact Costa Pappas (02) 6252 6161.

ENDNOTE

The unit of measurement varies between XCLI components. For example, the real interest rate is measured as a per cent, job vacancies as a number, United States GDP in dollar terms and the trade factor is measured in index number form. Each component is therefore standardised to make their contributions to the XCLI comparable.

The standardisation procedure gives each XCLI component an average value of 1. The variation of each component about its average is also standardised, so that the average deviation also equals 1. Chain volume GDP (the reference series) is also standardised in the same way.

Graphs 1 and 3 use the standardised forms of the XCLI, GDP and non-farm GDP series. The graphs show the deviation of the standardised series from their respective historical long-term trends. Because of the standardisation procedure, the deviation measure has no particular unit (i.e. it is not measured in dollars, or per cent change, or any other real world unit).

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